

AMENDMENT(S) TO THE CLAIMS

1 1. (currently amended): A method comprising:

2 receiving a data bitstream that includes object-based media information;

3 associating portions of the object-based media information with a plurality

4 of different transmission priority levels; and

5 selectively transmitting the portions of the object-based media information
6 along with the associated plurality of different transmission priority levels over a
7 network that is configured to provide differential services based at least on the
8 plurality of different transmission priority levels; and

9 selectively discarding, within the network that is configured to provide
10 differential services, one or more of the portions of the object-based media
11 information based at least on the associated plurality of different transmission
12 priority levels and on at least one input received from a downstream client.

13 2. (original): The method as recited in Claim 1, wherein the data
14 bitstream includes object-based media information for a single object.

15 3. (original): The method as recited in Claim 2, wherein the single
16 object is a video object.

17 4. (original): The method as recited in Claim 2, wherein the single
18 object is an audio object.

1 5. (previously presented): The method as recited in Claim 1, wherein
2 associating portions of the object-based media information with the plurality of
3 different transmission priority levels further includes:

4 placing the portions of the object-based media information in a plurality of
5 data packets, wherein each data packet is associated with a specific transmission
6 priority of the plurality of different transmission priority levels.

7.
8 6. (original): The method as recited in Claim 5, wherein at least one of
9 the plurality of data packets includes non-contiguous portions of data from within
10 the data bitstream.

11
12 7. (previously presented): The method as recited in Claim 5, wherein
13 selectively transmitting the portions of the object-based media information over
14 the network further includes:

15 causing the network to selectively halt the transmission of a first data
16 packet carrying object-based media information that is associated with a first
17 priority level prior to halting the transmission of a second data packet carrying
18 object-based media information that is associated with a second priority level if
19 the second priority level is higher than the first priority level, should a need arise
20 while transmitting the first and second data packets.

21
22 8. (original): The method as recited in Claim 1, wherein the
23 differential services provide different substantially guaranteed Quality of Service
24 (QoS) transmission capabilities for different transmission priority levels.

1

2 9. (original): The method as recited in Claim 3, wherein the object-based media information includes a plurality of different types of video frame layers selected from a group that includes Intra (I) coded frame layers, Predicted (P) frame layers, Bi-directionally (B) predicted frame layers, Intra (I) coded frame enhancement layers, Predicted (P) frame enhancement layers, and Bi-directionally (B) predicted frame enhancement layers.

8

9 10. (original): The method as recited in Claim 9, wherein associating portions of the object-based media information with the plurality of different transmission priority levels further includes:

12 setting the transmission priority levels based at least in part on the type of
13 video frame layer.

14

15 11. (original): The method as recited in Claim 10, wherein setting the transmission priority levels based at least in part on the type of video frame layer further includes:

18 causing Intra (I) coded frame layer data to have a higher transmission priority level than Predicted (P) frame layer data;

20 causing Predicted (P) frame layer data to have a higher transmission priority level than Bi-directionally (B) predicted frame layer data;

22 causing Bi-directionally (B) predicted frame layer data to have a higher transmission priority level than Intra (I) coded frame enhancement layer data;

1 causing Intra (I) coded frame enhancement layer data to have a higher
2 transmission priority level than Predicted (P) frame enhancement layer data; and
3 causing Predicted (P) frame enhancement layer data to have a higher
4 transmission priority level than Bi-directionally (B) predicted frame enhancement
5 layer data.

6

7 12. (original): The method as recited in Claim 3, wherein the object-
8 based media information further includes a plurality of different types of video
9 object information selected from a group that includes control information, shape
10 information, motion information and texture information.

11

12 13. (original): The method as recited in Claim 12, wherein associating
13 portions of the object-based media information with the plurality of different
14 transmission priority levels further includes:

15 setting the transmission priority levels based at least in part on the type of
16 video object information.

17

18 14. (original): The method as recited in Claim 13, wherein setting the
19 transmission priority levels based at least in part on the type of video object
20 information further includes:

21 causing at least a portion of the control information to have a higher
22 transmission priority level than at least a portion of the shape information.

1 15. (original): The method as recited in Claim 13, wherein setting the
2 transmission priority levels based at least in part on the type of video object
3 information further includes:

4 causing at least a portion of the shape information to have a higher
5 transmission priority level than at least a portion of the motion information.

6

7 16. (original): The method as recited in Claim 13, wherein setting the
8 transmission priority levels based at least in part on the type of video object
9 information further includes:

10 causing at least a portion of the motion information to have a higher
11 transmission priority level than at least a portion of the texture information.

12

13 17. (original): The method as recited in Claim 13, wherein setting the
14 transmission priority levels based at least in part on the type of video object
15 information further includes:

16 causing at least a portion of the texture information to have a higher
17 transmission priority level than at least a portion of the shape information.

18

19 18. (original): The method as recited in Claim 3, wherein:
20 the object-based media information includes a plurality of different types of
21 video frame layers selected from a group that includes Intra (I) coded frame layers,
22 Predicted (P) frame layers, Bi-directionally (B) predicted frame layers, Intra (I)
23 coded frame enhancement layers, Predicted (P) frame enhancement layers, and Bi-
24 directionally (B) predicted frame enhancement layers;

1 the object-based media information further includes a plurality of different
2 types of video object information selected from a group that includes control
3 information, shape information, motion information and texture information; and

4 wherein associating portions of the object-based media information with
5 the plurality of different transmission priority levels further includes setting the
6 transmission priority levels based at least in part on the type of video frame layer
7 and the type of video object information.

8
9 19. (original): The method as recited in Claim 18, wherein setting the
10 transmission priority levels based at least in part on the type of video frame layer
11 and the type of video object information further includes:

12 setting control information to a class 0 transmission priority level;

13 setting shape information and texture DC information of at least one Intra
14 (I) coded frame layer to a class 1 transmission priority level;

15 setting texture AC information of the Intra (I) coded frame base layer to a
16 class 2 transmission priority level;

17 setting shape information and motion information of at least one Predicted
18 (P) frame layer to a class 3 transmission priority level;

19 setting texture information of the Predicted (P) frame layer to a class 4
20 transmission priority level; and

21 setting shape information, motion information and texture information of at
22 least one Bi-directionally (B) predicted frame base layer to a class 5 transmission
23 priority level, and

1 wherein the class 0 transmission priority level is higher than the class 1
2 transmission priority level, the class 1 transmission priority level is higher than the
3 class 2 transmission priority level, the class 2 transmission priority level is higher
4 than the class 3 transmission priority level, the class 3 transmission priority level is
5 higher than the class 4 transmission priority level, and the class 4 transmission
6 priority level is higher than the class 5 transmission priority level.

7

8 20. (original): The method as recited in Claim 1, further comprising:
9 receiving at least one down-stream preference with regard to the object-
10 based media information; and
11 selectively transmitting at least one of the portions of the object-based
12 media information over the network based on the down-stream preference.

13

14 21. (original): The method as recited in Claim 1, further comprising:
15 receiving at least one down-stream preference with regard to the object-
16 based media information; and
17 selectively halting the transmission of at least one of the portions of the
18 object-based media information over the network based on the down-stream
19 preference.

20

21 22. (original): The method as recited in Claim 1, wherein the data
22 bitstream includes MPEG-4 encoded video data.

1 23. (original): The method as recited in Claim 1, wherein the network is
2 an Internet Protocol (IP) based network.

3
4 24. (currently amended): An arrangement comprising:
5 a server device configured to provide a data bitstream that includes object-
6 based media information having portions of the object-based media information
7 associated with a plurality of different transmission priority levels and that
8 includes identifications of the associated plurality of different transmission priority
9 levels;

10 at least one client device; and

11 at least one communication network operatively coupled between the server
12 device and the client device, the communication network being configured to
13 provide selective differential services based at least on the identifications of the
14 associated plurality of different transmission priority levels of the portions of the
15 object-based media information and on at least one input received from the at least
16 one client device.

17
18 25. (original): The arrangement as recited in Claim 24, wherein the data
19 bitstream includes object-based media information for a single object.

20
21 26. (original): The arrangement as recited in Claim 25, wherein the
22 single object is a video object.

23

1 27. (original): The arrangement as recited in Claim 25, wherein the
2 single object is an audio object.

3
4 28. (previously presented): The arrangement as recited in Claim 24,
5 wherein the server device is further configured to place the portions of the object-
6 based media information in a plurality of data packets, wherein each data packet is
7 associated with a specific transmission priority of the plurality of different
8 transmission priority levels.

9
10 29. (original): The arrangement as recited in Claim 28, wherein at least
11 one of the plurality of data packets includes non-contiguous portions of data from
12 within the data bitstream.

13
14 30. (previously presented): The arrangement as recited in Claim 28,
15 wherein the communication network is further configured to selectively halt the
16 transmission of a first data packet carrying object-based media information that is
17 associated with a first priority level prior to halting the transmission of a second
18 data packet carrying object-based media information that is associated with a
19 second priority level if the second priority level is higher than the first priority
20 level, should a need arise while transmitting the first and second data packets.

21
22 31. (original): The arrangement as recited in Claim 24, wherein the
23 selective differential services provide different substantially guaranteed Quality of
24 Service (QoS) transmission capabilities for different transmission priority levels.

1

2 32. (original): The arrangement as recited in Claim 26, wherein the
3 object-based media information includes a plurality of different types of video
4 frame layers selected from a group that includes Intra (I) coded frame layers,
5 Predicted (P) frame layers, Bi-directionally (B) predicted frame layers, Intra (I)
6 coded frame enhancement layers, Predicted (P) frame enhancement layers, and Bi-
7 directionally (B) predicted frame enhancement layers.

8

9 33. (original): The arrangement as recited in Claim 32, wherein the
10 server device is further configured to set the transmission priority levels based at
11 least in part on the type of video frame layer.

12

13 34. (original): The arrangement as recited in Claim 33, wherein the
14 server device is further configured to:

15 set Intra (I) coded frame layer data to a higher transmission priority level
16 than Predicted (P) frame layer data;

17 set Predicted (P) frame layer data to a higher transmission priority level
18 than Bi-directionally (B) predicted frame layer data;

19 set Bi-directionally (B) predicted frame layer data to a higher transmission
20 priority level than Intra (I) coded frame enhancement layer data;

21 set Intra (I) coded frame enhancement layer data to a higher transmission
22 priority level than Predicted (P) frame enhancement layer data; and

23 set Predicted (P) frame enhancement layer data to a higher transmission
24 priority level than Bi-directionally (B) predicted frame enhancement layer data.

1

2 35. (original): The arrangement as recited in Claim 26, wherin the
3 object-based media information further includes a plurality of different types of
4 video object information selected from a group that includes control information,
5 shape information, motion information and texture information.

6

7 36. (original): The arrangement as recited in Claim 35, wherein the
8 server device is further configured to set the transmission priority levels based at
9 least in part on the type of video object information.

10

11 37. (original): The arrangement as recited in Claim 36, wherein the
12 server device is further configured to set at least a portion of the control
13 information to a higher transmission priority level than at least a portion of the
14 shape information.

15

16 38. (original): The arrangement as recited in Claim 36, wherein the
17 server device is further configured to set at least a portion of the shape information
18 to a higher transmission priority level than at least a portion of the motion
19 information.

20

21 39. (original): The arrangement as recited in Claim 36, wherein the
22 server device is further configured to set at least a portion of the motion
23 information to a higher transmission priority level than at least a portion of the
24 texture information.

1

2 40. (original): The arrangement as recited in Claim 36, wherein the
3 server device is further configured to set at least a portion of the texture
4 information to a higher transmission priority level than at least a portion of the
5 shape information.

6

7 41. (original): The arrangement as recited in Claim 26, wherein:
8 the object-based media information includes a plurality of different types of
9 video frame layers selected from a group that includes Intra (I) coded frame layers,
10 Predicted (P) frame layers, Bi-directionally (B) predicted frame layers, Intra (I)
11 coded frame enhancement layers, Predicted (P) frame enhancement layers, and Bi-
12 directionally (B) predicted frame enhancement layers;

13 the object-based media information further includes a plurality of different
14 types of video object information selected from a group that includes control
15 information, shape information, motion information and texture information; and

16 wherein the server device is further configured to set the transmission
17 priority levels based at least in part on the type of video frame layer and the type
18 of video object information.

19

20 42. (original): The arrangement as recited in Claim 41, wherein the
21 server device is further configured to:

22 set control information to a class 0 transmission priority level;

23 set shape information and texture DC information of at least one Intra (I)
24 coded frame layer to a class 1 transmission priority level;

1 set texture AC information of the Intra (I) coded frame base layer to a class
2 transmission priority level;

3 set shape information and motion information of at least one Predicted (P)
4 frame layer to a class 3 transmission priority level;

5 set texture information of the Predicted (P) frame layer to a class 4
6 transmission priority level; and

7 set shape information, motion information and texture information of at
8 least one Bi-directionally (B) predicted frame base layer to a class 5 transmission
9 priority level, and

10 where the class 0 transmission priority level is higher than the class 1
11 transmission priority level, the class 1 transmission priority level is higher than the
12 class 2 transmission priority level, the class 2 transmission priority level is higher
13 than the class 3 transmission priority level, the class 3 transmission priority level is
14 higher than the class 4 transmission priority level, and the class 4 transmission
15 priority level is higher than the class 5 transmission priority level.

16

17 43. (original): The arrangement as recited in Claim 24, wherein the
18 network is further configured to:

19 receive at least one down-stream preference generated within the
20 communication network or by the client device with regard to the object-based
21 media information; and

22 selectively transmit at least one of the portions of the object-based media
23 information based on the down-stream preference.

24

1 44. (original): The arrangement as recited in Claim 24, wherein the
2 network is further configured to:

3 receive at least one down-stream preference generated within the
4 communication network or by the client device with regard to the object-based
5 media information; and

6 selectively halt the transmission at least one of the portions of the object-
7 based media information based on the down-stream preference.

9 45. (original): The arrangement as recited in Claim 24, wherein the data
10 bitstream includes MPEG-4 encoded video data.

12 46. (original): The arrangement as recited in Claim 24, wherein the
13 network is an Internet Protocol (IP) based network.

15 47. (currently amended): A method for use in a communications node
16 within a network, the method comprising:

17 receiving data at the communications node that includes object-based media
18 information that is packetized according to different transmission priority levels,
19 the data including indications of the different transmission priority levels; and

20 selectively outputting from the communications node the portions of the
21 object-based media information based at least on the indications of the different
22 transmission priority levels included in the received data and on at least one input
23 received from a downstream client with regard to the object-based media
24 information.

1

2 48. (original): The method as recited in Claim 47, wherein the data
3 bitstream includes object-based media information for a single video object.

4

5 49. (original): The method as recited in Claim 47, wherein the data
6 bitstream includes object-based media information for a single audio object.

7

8 50. (original): The method as recited in Claim 47, wherein the communication node is configured to support differential services that provide
9 different substantially guaranteed Quality of Service (QoS) transmission
10 capabilities for the different transmission priority levels.

12

13 51. (original): The method as recited in Claim 47, wherein the object-based media information includes a plurality of different types of video frame layers selected from a group that includes Intra (I) coded frame layers, Predicted (P) frame layers, Bi-directionally (B) predicted frame layers, Intra (I) coded frame enhancement layers, Predicted (P) frame enhancement layers, and Bi-directionally (B) predicted frame enhancement layers.

19

20 52. (original): The method as recited in Claim 51, wherein the received data is packetized according to different transmission priority levels based at least
21 in part on the type of video frame layer.

23

1 53. (original): The method as recited in Claim 52, wherein, within the
2 received data, at least one of the following statements is true:

3 the Intra (I) coded frame layer data has a higher transmission priority level
4 than Predicted (P) frame layer data;

5 the Predicted (P) frame layer data has a higher transmission priority level
6 than Bi-directionally (B) predicted frame layer data;

7 the Bi-directionally (B) predicted frame layer data has a higher
8 transmission priority level than Intra (I) coded frame enhancement layer data;

9 the Intra (I) coded frame enhancement layer data has a higher transmission
10 priority level than Predicted (P) frame enhancement layer data; and

11 the Predicted (P) frame enhancement layer data has a higher transmission
12 priority level than Bi-directionally (B) predicted frame enhancement layer data.

14 54. (original): The method as recited in Claim 47, wherein the object-
15 based media information further includes a plurality of different types of video
16 object information selected from a group that includes control information, shape
17 information, motion information and texture information.

19 55. (original): The method as recited in Claim 54, wherein the received
20 data is packetized according to different transmission priority levels based at least
21 in part on the type of video object information.

1 56. (original): The method as recited in Claim 55, wherein at least a
2 portion of the control information has a higher transmission priority level than at
3 least a portion of the shape information.

4

5 57. (original): The method as recited in Claim 55, wherein at least a
6 portion of the shape information has a higher transmission priority level than at
7 least a portion of the motion information.

8

9 58. (original): The method as recited in Claim 55, wherein at least a
10 portion of the motion information has a higher transmission priority level than at
11 least a portion of the texture information.

12

13 59. (original): The method as recited in Claim 55, wherein at least a
14 portion of the texture information has a higher transmission priority level than at
15 least a portion of the shape information.

16

17 60. (original): The method as recited in Claim 47, wherein:
18 the object-based media information includes a plurality of different types of
19 video frame layers selected from a group that includes Intra (I) coded frame layers,
20 Predicted (P) frame layers, Bi-directionally (B) predicted frame layers, Intra (I)
21 coded frame enhancement layers, Predicted (P) frame enhancement layers, and Bi-
22 directionally (B) predicted frame enhancement layers;

1 the object-based media information further includes a plurality of different
2 types of video object information selected from a group that includes control
3 information, shape information, motion information and texture information; and
4 wherein the received data is packetized according to different transmission
5 priority levels based at least in part on the type of video frame layer and the type
6 of video object information.

7

8 61. (original): The method as recited in Claim 60, wherein:
9 control information has a class 0 transmission priority level;
10 shape information and texture DC information of at least one Intra (I) coded
11 frame layer each have a class 1 transmission priority level;
12 texture AC information of the Intra (I) coded frame base layer has a class 2
13 transmission priority level;
14 shape information and motion information of at least one Predicted (P)
15 frame layer each have a class 3 transmission priority level;
16 texture information of the Predicted (P) frame layer has a class 4
17 transmission priority level; and
18 shape information, motion information and texture information of at least
19 one Bi-directionally (B) predicted frame base layer each have a class 5
20 transmission priority level, and

1 wherein the class 0 transmission priority level is higher than the class 1
2 transmission priority level, the class 1 transmission priority level is higher than the
3 class 2 transmission priority level, the class 2 transmission priority level is higher
4 than the class 3 transmission priority level, the class 3 transmission priority level is
5 higher than the class 4 transmission priority level, and the class 4 transmission
6 priority level is higher than the class 5 transmission priority level.

7

8 62. (original): The method as recited in Claim 47, further comprising:
9 receiving at least one down-stream preference with regard to the object-
10 based media information; and
11 selectively outputting at least one of the portions of the object-based media
12 information based on the down-stream preference.

13

14 63. (original): The method as recited in Claim 47, wherein the received
15 data includes MPEG-4 encoded video data.

16

17 64. (original): The method as recited in Claim 47, wherein the received
18 data includes Internet Protocol (IP) data.

1 65. (currently amended): A system comprising:

2 at least one client device configured to receive prioritized video object-
3 based data packets and output control requests relating to a video object;

4 at least one server device configured to output prioritized object-based data
5 packets representing the video object, the prioritized object-based data packets
6 being prioritized based at least on part on the type of data as selected from a group
7 comprising control data, shape data, motion data, and texture data; and

8 at least one video transmission agent (VTA) that is part of a network linking
9 the at least one client device to the at least one server device, the VTA coupled to
10 receive the prioritized object-based data packets from the server device and the
11 control requests from the client device, and the VTA adapted to selectively output
12 at least a portion of the received prioritized object-based data packets to the client
13 device based on the prioritization and in response to the control requests.

14

15 66. (original): The system as recited in Claim 65, further comprising:

16 a network operatively coupled between the server device and the client
17 device, and wherein the video transmission agent (VTA) is operatively configured
18 within the network.

19

20 67. (original): The system as recited in Claim 66, wherein the network
21 is further configured to provide differential services to the prioritized object-based
22 data packets, such that prioritized object-based data packets having lower priority
23 levels are selectively dropped should the network become congested.

1 68. (currently amended): A computer-readable medium having a data
2 structure, comprising:

3 a first field containing identifying data associated with a portion of a data
4 bitstream that represents a video object;

5 at least one second field that is derived from the first field and includes data
6 representing object-based video information for the video object that has been
7 classified as having a specific transmission priority level based on at least one type
8 of object-based video information selected from a group comprising control
9 information, shape information, motion information, and texture information; and

10 a third field comprising a network packet header and containing data
11 identifying the specific transmission priority level of the data in the at least one
12 second field;

13 wherein a network node is enabled to selectively filter packets based on the
14 specific transmission priority level identified in the third field and responsive to
15 control requests from at least one downstream client that is receiving the video
16 object.

17
18 69. (canceled)

19
20 70. (original): A computer-readable medium having computer-
21 executable instructions for performing the steps recited in Claim 1.

22
23 71. (original): A computer-readable medium having computer-
24 executable instructions for performing the steps recited in Claim 47.

1

2 72. (currently amended): A method comprising:

3 receiving a data bitstream that includes object-based media information;
4 associating portions of the object-based media information with a plurality
5 of different transmission priority levels based, at least in part, on whether a given
6 portion of the object-based media information comprises shape information or
7 texture information; wherein shape information is associated with a higher
8 transmission priority level than texture information within a single frame; and

9 selectively transmitting the portions of the object-based media information
10 over a network that is configured to provide differential services based at least on
11 the plurality of different transmission priority levels; and

12 selectively discarding, within the network that is configured to provide
13 differential services, one or more of the portions of the object-based media
14 information based at least on the plurality of different transmission priority levels
15 and on at least one input received from a downstream client.

16

17